

DOCKET NO. D-2012-009-2

DELAWARE RIVER BASIN COMMISSION

Special Protection Waters

**Dorney Park & Wildwater Kingdom
Groundwater Withdrawal
South Whitehall Township, Lehigh County, Pennsylvania**

PROCEEDINGS

This docket is issued in response to an Application submitted by Pennoni Associates Inc. on behalf of Dorney Park and Wildwater Kingdom (Dorney Park or docket holder) to the Delaware River Basin Commission (DRBC or Commission) on April 9, 2014 for approval of an allocation of groundwater and review of a groundwater water withdrawal project (Application). The existing groundwater withdrawal was approved by the Commission on September 12, 2012. The new system providing make-up water to the wave pool will be reviewed by the Pennsylvania Department of Health for conformance with its bathing facility regulations.

The Application was reviewed for approval under Section 3.8 of the *Delaware River Basin Compact*. The Lehigh County Planning Commission has been notified of pending action on this docket. A public hearing on this project was held by the DRBC on June 10, 2014.

A. DESCRIPTION

1. **Purpose.** The purpose of this project is to approve the withdrawal of up to 1.24 million gallons per month (mgm) of groundwater to the docket holder's amusement park from new Well No. 9 and to increase the total groundwater allocation from 11.89 mgm to 13.14 mgm of groundwater from existing Wells Nos. 1, 4, 5, 7 and 8 and new Well No. 9. Water is used for irrigation, non-contact cooling, water rides, and water features. Well No. 9 will be used to supply makeup water for a wave pool and other water attractions.

2. **Location.** Dorney Park and its existing wells, including the new well, are located in the Cedar Creek Watershed in South Whitehall Township, Lehigh County, Pennsylvania. Cedar Creek in the area of the project site is designated by the Pennsylvania Department of Environmental Protection (PADEP) as High Quality supporting Cold Water Fishes (HQ-CWF). The project is located within the drainage area to the section of the non-tidal Delaware River known as the Lower Delaware, which is designated as Special Protection Waters. All project wells withdrawal water from the Allentown Formation.

Specific location information has been withheld for security reasons.

3. **Area Served.** The docket holder's wells only serve non-potable water to the park for irrigation, non-contact cooling, water rides, and water features. For the purpose of defining Area Served, the Application is incorporated herein by reference consistent with conditions contained in the DECISION section of this docket.

4. **Physical features.**

a. **Design criteria.** Dorney Park has used groundwater for its attractions since its inception in 1870. Groundwater was also relied upon for all attractions until the waterpark was built in 1985. With the increased water demand of the water park, Dorney Park opted to purchase municipal water from South Whitehall Township Authority instead of seeking additional sources of supply. From 1999 to the present, all potable water used in the park (approximately 51.9 mg in 2010) has been purchased from South Whitehall Township Authority. The docket holder projects the 10-year demand of water purchased from SWTA will remain at an average of 0.142 mgd (approximately 51.9 mgy). Since 1999, annual groundwater withdrawals for non-potable water supply at the park have averaged between 20 and 30 million gallons per year (mgy) with a maximum monthly withdrawal of approximately 9.6 million gallons (mg).

Dorney Park has a total of nine (9) wells on the park property (Well Nos. 1, 2, 3, 4, 5, 6, 7, 8, and upon approval, new well No. 9) that can be utilized for non-potable water supply. Wells Nos. 2, 3, and 6 are not currently being used, but remain as emergency back-up wells. Dorney Park records an existing average and maximum self-supplied groundwater demand of 0.095 million gallons per day (mgd) and 0.489 mgd, respectively. The existing peak monthly demand is 9.6 mgm (average of 0.310 mgd). Dorney Park projects the 10-year average and maximum self-supplied groundwater demands to increase to 0.135 mgd and 0.589 mgd, respectively. The projected 10-year peak monthly demand is 13.14 mgm (average of 0.4239 mgd). The allocation of 13.14 mgm should be sufficient to meet the future self-supplied groundwater demands of Dorney Park.

b. **Facilities.** The existing and proposed project wells have the following characteristics:

WELL NO.	PADEP WELL ID	WELL DEPTH	CASED DEPTH/ CASING DIAMETER	PUMP CAPACITY	YEAR DRILLED
1	Greenhouse	125'	unknown / 6"	12 gpm	unknown
2	Not listed	80'	unknown / 6"	65 gpm	unknown
3	Not Listed	85'	unknown / 6"	65 gpm	unknown

WELL NO.	PADEP WELL ID	WELL DEPTH	CASED DEPTH/ CASING DIAMETER	PUMP CAPACITY	YEAR DRILLED
4	TCM Raceway Well	100'	unknown / 6"	65 gpm	unknown
5	TCM Makeup Spring	13'	13' / 48"	490 gpm	unknown
6	Not Listed	85'	unknown / 6"	65 gpm	unknown
7	Camp Snoopy Well	105'	unknown / 6"	65 gpm	unknown
8	Canyon Makeup Well	85'	unknown / 6"	65 gpm	unknown
9	Not Listed	295'	70' / 8"	300 gpm	2013

All existing wells are metered. Well No. 9 will also be metered.

Water withdrawn from Well No. 9 will be used as make-up water in the wave pool and will receive chlorine disinfection as needed. Groundwater withdrawn from the other wells is not treated.

The project wellheads are above the 100-year flood elevation.

Dorney Park purchases potable water from South Whitehall Township Authority (SWTA). The SWTA water system was approved in DRBC Docket No. D-1991-082 CP-3 on July 10, 2013.

c. Other. Wastewater is conveyed to the City of Allentown sewage treatment facility most recently approved by DRBC Docket No. D-97-14 CP on August 6, 1997. The PADEP issued its most recent NPDES Permit No. PA0026000 on March 20, 2003 for this treatment facility. The treatment facility has adequate capacity to receive wastewater from the proposed project.

d. Cost. The overall cost of the proposed well is estimated to be \$140,000.

B. FINDINGS

Well No. 9 is needed to supply make-up water for an existing wave pool and other water attractions. The peak demand requirement occurs after the filter backwash of the wave pool. Since each backwash period lasts for only 20 to 30 minutes, a supply of 300 gpm is need to rapidly respond to the make-up water demand. However, since this demand will be intermittent, the total daily withdrawal rate will be much lower. The docket holder estimates that maximum daily demand will be 100,000 gpd, but average less than 40,000 gpd over the course of a month, resulting in a demand during peak summer months of 1.24 mgm.

Well No. 9 Pumping Test

A 48-hour pumping test was conducted on Well No. 9 from December 9, 2013 to December 11, 2013 at a continuous pumping rate of 338 gpm. Prior to the start of the pumping test, the static water level in Well No. 9 was 59.46 feet below top of casing (btoc). After 48 hours of continuous pumping, the water level was 68.58 feet btoc, for a total drawdown of 9.12 feet. After the pumping test, water levels recovered 90 percent within 5 hours and 95 percent within 12 hours.

Several precipitation events (rain and snow) occurred during the background, pumping and recovery periods. Water level measurements from the United States Geological Survey (USGS) Lehigh County Observation Well showed a water level increase of 2.5 feet from December 6 through December 13, 2013. The majority of the water level increase occurred prior to the start of the pumping test with only 0.4 feet of rise during the pumping and recovery portions of the Well No. 9 pumping test. Additionally, static water levels in STWA Well No. 5 were level throughout the period. Based on the water level data, the precipitation events did not appear to have caused significant recharge during the pumping test period.

A total of four observation wells were monitored with pressure transducer/data loggers before, during and after the Well No. 9 pumping test. Three of the observation wells were SWTA's production wells Nos. 5, 11 and 16, which are located 2,000 feet, 1,400 feet and 5,300 feet from Well No. 9, respectively. The fourth observation well measured with a pressure transducer/data logger was the Dorney Park Well No. 5, which is located 1,800 feet from Well No. 9. Additionally, periodic measurements were recorded at SWTA Well No. 3 using the existing airline installed in the well. SWTA Well No. 3 is located 5,300 feet from Well No. 9. Measurable drawdown was observed only in Dorney Park Well No. 5 (0.24 feet). Dorney Park Well No. 5 is a flowing well and its discharge was measured periodically during the test with a current/flow meter. During the pumping test, the discharge from Dorney Park Well No. 5 decreased from approximately 500 gpm to 440 gpm (a 10 to 15 percent decline). No drawdown as a result of pumping from Well No. 9 was observed in the SWTA production wells. These wells were in active production during the monitoring period. No drawdown was observed in Dorney Park Well No. 9 as a result of SWTA well withdrawals.

The drawdown and recovery data recorded at the pumping well and the drawdown recorded at Dorney Park No. 5 Well was used to estimate aquifer parameters in the vicinity of the pumping well. The transmissivity ranged from 7,400 square feet per day (ft^2/day) to 12,400 ft^2/day (average of 9,600 ft^2/day). The storativity value from the drawdown data measured at Dorney Park Well No. 5 was 0.0005. The 48-hour specific capacity of Well No. 9 was 37 gpm/foot of drawdown. Using the estimated aquifer parameters, the Well No. 9 long-term drawdown (90 days) at the proposed monthly average pumping rate of 24 gpm (1.24 mgm) was calculated to be 0.9 feet.

Based on the pumping test data, the proposed withdrawals from Well No. 9 should not adversely impact nearby wells. The pumping test was conducted at a rate of 338 gpm, which is 10 percent greater than the maximum pumping rate approved by this docket (300 gpm). Additionally, Well No. 9 will be used on an intermittent basis and the docket holder estimates

that the maximum daily withdrawal will be 100,000 gpd and average less than 40,000 gpd over a course of a month. The report concluded that any impacts from pumping will be negligible since the average withdrawal rate is less than 10 percent of the tested rate and will result in less than 1 foot of sustained drawdown in Well No. 9.

Special Protection Waters

In 1992, the DRBC adopted Special Protection Waters requirements, as part of the DRBC *Water Quality Regulations* (WQR), designed to protect existing high water quality in applicable areas of the Delaware River Basin. One hundred twenty miles of the Delaware River from Hancock, New York downstream to the Delaware Water Gap were classified by the DRBC as SPW. This stretch includes the sections of the river federally designated as "Wild and Scenic" in 1978 -- the Upper Delaware Scenic and Recreational River and the Delaware Water Gap National Recreation Area -- as well as an eight-mile reach between Milrift and Milford, Pennsylvania which is not federally designated. The SPW regulations apply to this 120-mile stretch of the river and its drainage area.

On July 16, 2008, the DRBC approved amendments to its *Water Quality Regulations* that provide increased protection for waters that the Commission classifies as Special Protection Waters. The portion of the Delaware River and its tributaries within the boundary of the Lower Delaware River Management Plan Area was approved for Special Protection Waters designation and clarity on definitions and terms were updated for the entire program.

Article 3.10.3A.2.e.1). and 2). of the *Water Quality Regulations, Administrative Manual - Part III*, states that projects subject to review under Section 3.8 of the Compact that are located in the drainage area of Special Protection Waters must submit for approval a Non-Point Source Pollution Control Plan that controls the new or increased non-point source loads generated within the portion of the docket holder's service area which is also located within the drainage area of Special Protection Waters. The existing wells and new well providing water supply to the docket holder are located within in the drainage area to the Special Protection Waters. Erosion and sediment control measures (hay bales) were used during the installation of the well. Since this project does not entail additional construction and expansion of facilities/service areas (i.e., there are not any new or increased non-point source loads associated with this approval), the non-point source pollution control plan requirement is not applicable at this time. Accordingly, Special Condition II.u. has been included in the Decision section of this docket.

The project is designed to conform to the requirements of the *Water Code* and *Water Quality Regulations* of the DRBC.

This project consists of an existing withdrawal of groundwater from Well Nos. 1, 4, 5, 7, and 8. The docket holder has requested to retain the previously approved allocations for existing Wells Nos. 1, 4, 5, 7, and 8, which were based on existing water use. The docket holder has requested an instantaneous and monthly allocation for new Well No. 9, based on the proposed maximum withdrawal rate and average daily rate during a peak month, respectively. These rates are provided in Decision Condition C.II.d. in the Decision Section of this docket.

The DRBC estimates that the project withdrawals, used for the purpose of irrigation, non-contact cooling, and ride/attraction make-up water results in a consumptive use of 25 percent of the total water use. The DRBC definition of consumptive use is defined in Article 5.5.1.D of the *Administrative Manual – Part III – Basin Regulations – Water Supply Charges*.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

C. DECISION

I. Effective on the approval date for Docket No. D-2012-009-2 below, Docket No. D-2012-009-1 is terminated and replaced by Docket No. D-2012-009-2.

II. The project and appurtenant facilities as described in the Section A “Physical features” are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

a. The docket holder shall register with and report to the PADEP all surface and ground water sources described in this docket in accordance with the Pennsylvania Regulations (Title 25 - Environmental Protection, [25 PA. CODE CH. 110], Water Resources Planning).

b. The wells and operational records shall be available at all times for inspection by the DRBC.

c. The wells shall be operated at all times to comply with the requirements of the *Water Code* and *Water Quality Regulations* of the DRBC.

d. During any month, the combined withdrawal from all well sources shall not exceed 13.14 million gallons. No well shall be pumped above the maximum instantaneous rate and monthly allocation as indicated below:

WELL NO.	MAXIMUM INSTANTANEOUS RATE	MONTHLY ALLOCATION
1	12 gpm	0.05 mgm
4	65 gpm	0.83 mgm
5	490 gpm	9.20 mgm
7	65 gpm	0.27 mgm
8	65 gpm	1.55 mgm
9	300 gpm	1.24 mgm

e. Emergency Back-up Well Nos. 2, 3, and 6 may only be used for withdrawals in emergency situations with written approval from the Executive Director.

f. The wells shall be equipped with readily accessible capped ports and minimum ½ inch inner diameter (ID) drop pipes so that water levels may be measured under all conditions. Existing wells are to be similarly equipped, where possible, with readily accessible ports and ½ inch ID drop pipes as repairs or modifications are made at each existing well.

g. The project withdrawals shall be metered with an automatic continuous recording device that measures to within 5 percent of actual flow. An exception to the 5 percent performance standard, but no greater than 10 percent, may be granted if maintenance of the 5 percent performance is not technically feasible or economically practicable. A record of daily withdrawals shall be maintained, and monthly totals shall be reported to the PADEP annually and shall be available at any time to the Commission if requested by the Executive Director.

h. The docket holder shall implement to the satisfaction of the PADEP, the continuous program to encourage water conservation in all types of use within the facilities served by this docket approval. The docket holder will report to the PADEP on the actions taken pursuant to this program and the impact of those actions as requested by the PADEP.

i. No water service connections shall be made to newly constructed facilities with plumbing fixtures and fittings that do not comply with water conservation performance standards contained in Resolution No. 88-2 (Revision 2).

j. The docket holder shall implement its Water Conservation Plan as approved by PADEP, and shall report to the PADEP on actions taken pursuant to this program and the impact of those actions as requested by the PADEP.

k. The docket holder shall implement to the satisfaction of the PADEP, a drought or other water supply emergency plan.

l. Sound practices of excavation, backfill and reseedling shall be followed to minimize erosion and deposition of sediment in streams from any new facilities or repair related construction.

m. No new water service connections shall be made to premises connected to sewerage systems which are not in compliance with all applicable effluent limits contained in State permits and the *Water Quality Regulations* of the Commission.

n. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

o. The docket holder is permitted to provide the water approved in this docket to the areas included in Section A.3. Area Served of this docket. Any expansion beyond those included in Section A.3. Area Served is subject to DRBC review and approval in accordance with Section 3.8 of the *Compact*.

p. Unless an extension is requested and approved by the Commission in advance, in accordance with paragraph 11 of the Commission's Project Review Fee schedule (Resolution No. 2009-2), the docket holder is responsible for timely submittal of a docket renewal application on the appropriate DRBC application form at least 12 months in advance of the docket expiration date set forth below. The docket holder will be subject to late charges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below (or the later date established by an extension that has been timely requested and approved), the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

q. The issuance of this docket approval shall not create any private or proprietary rights in the water of the Basin, and the Commission reserves the rights to amend, alter or rescind any actions taken hereunder in order to insure the proper control, use and management of the water resources of the Basin.

r. If the monitoring required herein, or any other data or information demonstrates that the operation of this project significantly affects or interferes with any domestic or other existing uses of ground or surface water, or if the docket holder receives a complaint by any existing ground or surface water users within the zone of influence of the withdrawal, the docket holder shall immediately notify the Executive Director of any complaints by any ground or surface users within the zone of influence of the withdrawal, and unless excused by the Executive Director, shall investigate such complaints. The docket holder should direct phone call notifications of potential well or surface water interference or complaints of interference to the DRBC Project Review Section at 609-883-9500, extension 216. Oral notification must always be followed up in writing directed to the Executive Director. In addition, the docket holder shall provide written notification to all potentially impacted users of wells or surface water supplies of the docket holder's responsibilities under this condition. Any ground or surface water user which is substantially adversely affected, rendered dry or otherwise diminished as a result of the docket holder's project withdrawal, shall be repaired, replaced or otherwise mitigated at the expense of the docket holder. A report of investigation and/or mitigation plan prepared by a hydrologist shall be submitted to the Executive Director as soon as practicable. The Executive Director shall make the final determination regarding the validity of such complaints, the scope or sufficiency of such investigations, and the extent of appropriate mitigation measures, if required.

s. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

t. For the duration of any drought emergency declared by either Pennsylvania or the Commission, water service or use by the docket holder pursuant to this approval shall be subject to the prohibition of those nonessential uses specified by the Governor

of Pennsylvania, the Pennsylvania Emergency Management Council, PADEP, or the Commonwealth Drought Coordinator to the extent that they may be applicable, and to any other emergency resolutions or orders adopted hereafter by the Commission.

u. Prior to allowing connections from any new service areas or any new developments, the docket holder shall either submit and have approved by the Executive Director of the DRBC a Non-Point Source Pollution Control Plan (NPSPCP) in accordance with Section 3.10.3.A.2.e, or receive written confirmation from the Executive Director of the DRBC that the new service area is in compliance with a DRBC approved NPSPCP.

v. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the *Rules of Practice and Procedure*. In accordance with Section 15.1(p) of the Delaware River Basin Compact, cases and controversies arising under the Compact are reviewable in the United States district courts.

BY THE COMMISSION

APPROVAL DATE: June 11, 2014

EXPIRATION DATE: June 11, 2024